REMARKS/ARGUMENTS

Applicants thank the Examiner for the careful consideration given the present application, and respectfully submit that the application is allowable in view of the following remarks.

A final Office action and subsequent advisory action have been issued in which claims 1-5, 7-9 and 11 were rejected. Applicants note, with appreciation, the identification in the advisory action of claim 10 as allowable if rewritten in independent form, including the limitations of the claims from which it depends. Accordingly, claim 10 has been so rewritten as independent claim 13. Claim 1 has also been amended, and new claim 12 has been added to the present application. The amendments made by way of this amendment address the issues raised in the final Office action and advisory action as discussed below.

With regard to the rejection of claims 1, 4, 6, 8, 9 and 11 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,863,433 to Behrends, applicants respectfully submit that the amendments made to claim 1 herein place that claim, and its dependent claims, in a condition for allowance. Behrends is directed to reciprocating subsurface-flow constructed wetlands and a method for operating said wetlands for treatment of wastewater. Substrates are provided with microbial biofilms and are exposed to atmospheric oxygen concentrations at frequent and intermittent intervals via sequential and recurrent filling and draining of paired contiguous wetland cells. "[R]iver gravel and/or limestone, and/or any other appropriate substrate" will suffice as the substrate according to Behrends. During the drain cycles, oxygen is rapidly supplied to the de-watered, and relatively thin (from about one micron to about two millimeters thick), microbial biofilms residing on the substrates. This exposure to oxygen promotes growth of aerobic bacteria that forms a portion of the microbial biofilms on the substrate. See Col. 7, ln. 66 – Col. 8, ln. 21.

As part of the Behrends disclosure, numerous detailed examples are provided for creating and operating the constructed wetlands to treat wastewater. The examples differ from each other in the type and size of substrate used. In three of the examples, washed river gravel was used as the substrate, and in another example, limestone gravel was used. In none of the examples was a combination of more than one type of substrate used.

ıtion of the substrate in Behrends was of the size
ıs of the constructed wetlands. A stated objective
f pore void space by providing "at least two size
uch that the large size grade is distributed on the
ı cells and the smaller size fraction is distributed
ent cells." Col. 8, ln. 58-62. No other mention is
kfill material. Thus, Behrends is silent about
ıanner to preferentially precipitate metals from an
he precipitating agent) over another available
. claimed in amended claim 1. Accordingly,
ı 1 is not anticipated by Behrends.

cted in the final Office action under 35 U.S.C.
S. Patent Nos. 5,298,173 to Burke; 6,033,562 to
ın, applicants respectfully submit that the recent
jection moot since the combination of references
ıended claims. For reasons analogous to those
to teach distributing the at least one neutralizing
ıgent in a manner to preferentially precipitate the
imed in amended claim 1.

ubmit that Stafford is a non-analogous reference
support a rejection under 35 U.S.C. §103. This
icants' endeavor nor reasonably pertinent to the
s were concerned. Stafford is also not a reference
itself to the applicants' attention in considering
ıdments to the claims above, Stafford appears to
vention.

ubmit that Burke, Budeit and Stafford, lack
their combination. Each reference, individually
the present invention. The neutralizing agent of
lime, is placed in bodies of water that are to be
blocks to elevate the pH of the water. Increasing

the pH causes certain metals to precipitate from the water, presumably onto the blocks due to the absence of an accompanying precipitating agent. Accumulation of metal on the neutralizing agent is a process sought to be retarded by the provision of the precipitating agent as recited in claim 1 of the present invention. Accordingly, applicants respectfully submit that claims 1-6 are patentable over the combination of Burke, Budeit and Stafford.

Claims 1-5 and 7 were also rejected in the final Office action under 35 U.S.C. §103(a) as being unpatentable over Burke, Budiet and Stafford in view of U.S. Patent Nos. 1,742,110 to Weihe or 5,863,422 to Watten. In light of the amendments to the claims, however, applicants submit that the combination including Weihe or Watten also fails to teach every feature of the present invention. Again, the combined references fail to teach distributing the at least one neutralizing agent and at least one precipitating agent as claimed in amended claim 1. The remarks above are equally applicable to these combinations of references, and are incorporated herein by reference.

Also applicable to the combinations including Weihe or Watten are the applicants' remarks concerning the inclusion of Stafford, which applicants deem to be a non-analogous reference relied upon to support a rejection based upon 35 U.S.C. §103. And again, applicants respectfully submit that the combination including Watten teaches away from the present invention by addressing the accumulation of precipitated metals in an alternative fashion. Watten discloses controlling the accumulation of metal precipitates on the neutralizing agent particles by periodically colliding the particles together. Forces generated by the collisions flake the metals from the particles. There is no mention in Watten of a precipitating agent to divert the precipitation of metals preferentially away from the neutralizing agent according to the present invention. Similarly, Weihe does not teach the inclusion of a precipitating agent as claimed in amended claim 1.

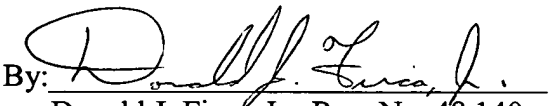
Independent claims 1, 3, 12 and 13 should be in a condition for allowance in light of the amendments to the claims and the remarks above. The remaining dependent claims 2, 4, 5 and 7-11 should be allowable for the limitations therein and for the limitations in the claims from which they depend. Notice to that effect is hereby requested.

In the event that minor issues remain unresolved, the Examiner is requested to contact the undersigned to arrange for a telephone interview to expedite disposition of this application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 500959 (089498.0372) for any fees required under 35 C.F.R. §1.16 or 1.17.

Respectfully submitted,

ROETZEL & ANDRESS

By: 
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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A process for removing metals from an aqueous solution comprising the steps of:

distributing at least one lithic neutralizing agent and at least one lithic precipitating agent to preferentially precipitate said metals from said aqueous solution onto the precipitating agent; and

contacting said aqueous solution with said at least one lithic neutralizing agent and said at least one lithic precipitating agent ~~that preferentially precipitates metals from the aqueous solution~~.

Claim 2 (original): The process of claim 1, wherein the at least one neutralizing agent is selected from the group consisting of limestone, marble, calcium carbonate, calcite, dolostone and dolomite.

Claim 3 (previously presented): A process for removing metals from an aqueous solution comprising the steps of:

contacting said aqueous solution with at least one lithic neutralizing agent and at least one lithic precipitating agent that preferentially precipitates metals from the aqueous solution, wherein the at least one precipitating agent is selected from the group consisting of sandstone, quartz, siltstone, quartzarenite, arkose, shale, feldspar, illite, gravel, granite, basalt, conglomerate, schist, slate, gnesis, diorite, gabbro, and ryholite.

Claim 4 (original): The process of claim 1, wherein the metals are selected from the group consisting of iron, iron oxide, silica, aluminum oxide, magnesium oxide, copper oxide, chromium oxide, nickel oxide, lead oxide, zinc, zinc oxide, aluminum, magnesium, cadmium, copper, chromium, nickel, lead.

Claim 5 (original): The process of claim 1, wherein said step of contacting an aqueous solution involves adding the at least one neutralizing agent and at least one precipitating agent to a natural stream of water.

Claim 6 (canceled)

Claim 7 (previously presented): The process of claim 5, wherein the at least one neutralizing agent and at least one precipitating agent are added in gravel form.

Claim 8 (original): The process of claim 1, wherein said step of contacting an aqueous solution involves passing the aqueous solution through a pipe that includes both the at least one neutralizing agent and the at least one precipitating agent.

Claim 9 (previously presented): The process of claim 8, wherein the at least one neutralizing agent and the at least one precipitating agent are provided in the pipe as a mixture of pieces of the at least one neutralizing agent and the at least one precipitating agent.

Claim 10 (previously presented): The process of claim 8, wherein the at least one neutralizing agent and the at least one precipitating agent are provided in the pipe as alternating rings.

Claim 11 (previously presented): The process of claim 8, wherein said step of contacting an aqueous solution includes utilizing a pump to urge the aqueous solution through the pipe.

Claim 12 (New): A process for removing metals from an aqueous solution comprising the steps of:

providing a lithic neutralizing agent and a lithic precipitating agent;

exposing the aqueous solution to a surface of each of the neutralizing agent and the precipitating agent; and

preferentially precipitating the metals from the aqueous solution on the precipitating agent relative to the neutralizing agent.

Claim 13 (New): A process for removing metals from an aqueous solution comprising the steps of:

providing at least one neutralizing agent and at least one precipitating agent in a pipe as alternating rings;

passing the aqueous solution through the pipe that includes both the at least one neutralizing agent and the at least one precipitating agent; and

contacting said aqueous solution with the at least one lithic neutralizing agent and the at least one lithic precipitating agent that preferentially precipitates metals from the aqueous solution.